Design and Development of an Online Video Enhanced Case-Based Learning Environment for Teacher Education

Fatih Saltan[1*]   M.Yaşar Özden[2]   Ercan Kiraz[3]

1. Computer Education and Instructional Technology Department, Educational Faculty A-Building
2. Computer Education and Instructional Technology Department ,Near East University, Turkey
3. Educational Science Department, Middle East University, Turkey

Abstract

People generally prefer to use stories in order to provide context when expressing a point. Spreading a message without context is unlikely to be meaningful. Like stories, cases have contextual meaning and allow learners to see a situation from multiple perspectives. The main purpose of the present study was to investigate how to design and develop an authentic, online case-based learning environment to provide preservice teachers with the opportunity to practice their skills in real-life situations. The study employed an action research method, a form of qualitative approach. 32 pre-service teachers participated in an online, video-enhanced, case-based learning environment known as VOCABLE. Three action research cycles were conducted and at the end of each cycle, data were gathered through interviews and questionnaires. The qualitative data were analyzed using descriptive and content analysis techniques using Nvivo8 qualitative data analysis tool. The results indicated that six main factors contributed to the authenticity of the cases: commonness, providing different perspectives, filling emotion, holding experience, reflecting social facts and being multimedia. Almost all pre-service teachers (96%) agreed that getting experts' solutions was very helpful. They also emphasized the value of peer evaluation and online discussion.

Keywords: Online Learning, Action Research, Case-based Learning, Teacher Education

1. Introduction

People generally prefer stories to express a point in contextual meaning. Parents tell stories to their children to give some special messages and teachers also use stories to convey important topics. Stories are preferred because the nature of the stories hosts the contextual meaning and "learning from stories occurs naturally" (Edelson, 1996, p.359). Like stories, cases have contextual meaning and help people to see the situation from multiple perspectives. Harvard Law School began to use cases in education in the 1870s and since then, many medical and business schools have explored the power of cases (Jonassen, 2004). Cases have been used in schools in a variety of forms, such as text-based, video-based, web enhanced and multimedia cases. In addition, different methods have been applied; for example, case written analysis, case discussion, case development and recently case-based reasoning (Kim and Hannafin, 2008). Cases are preferable since educators can convey real life situations in the classroom through authentic cases. Also using cases in education positively affects students' motivation (Brooke, 2006; Edelson, 1996). Cases attract students' attention and keep their motivation high during the instruction.

Moster (2007) indicated that after the 1980s, teacher educators began to increasingly use this methodology with both pre-service and in-service teachers. In teacher education, medical education and legal education, cases are widely used. In these fields, case-based instruction is applied to bridge theory and practice by providing real life situations. In case instruction, learners use and apply their theoretical knowledge to analyze cases and to conduct an evaluation. Actually, the nature of such practical fields occupies case method philosophy, so case-based instruction is more suitable and effective in those fields.

On the other hand, the main aim of higher education is to prepare students to overcome the problems they will encounter in professional life (Arts, Gijselaers & Segers, 2006 ; Choi and Lee, 2008). When students graduate from university and start professional life, they have to deal with many real-world problems. However, especially in teacher education, it is not possible to define all possible real life problems and prepare preservice teachers to overcome them. Therefore, most preservice teachers begin teaching without having a solution to many problems. Most of the problems reported by teachers are discipline and misbehavior problems (Erdogan et al., 2010). In Turkey, recent studies showed that approximately half of the problems that teachers deal with occur during the teacher-student interaction (Kıyıcı & Kabakçı, 2006; Deryakulu, 2005).

However, improvements in web technologies and the "video world" have greatly affected online learning environments. Recently, advanced video streaming technologies have been applied in web-based learning environments. Now, the interactivity in online settings is more powerful. With the help of these technologies, preservice teachers can be involved in an online learning environment without any limitation. These technological improvements and opportunities have provided a technical infrastructure for this action research.

1.1 Purpose of the Study

The main purpose of the study was to investigate how to design and develop a suitable and authentic online case-based learning environment for teacher education. In order to achieve this purpose, the following research question was formulated.

   Which properties of an online case-based learning environment are necessary in the current context?

a) What kind of method and scaffoldings should be used?

b) Which technologies and facilitators should be used?

2. Method

In the present study, action research, aform of qualitative research, was conducted. The term "action research" was initially suggested by the social psychologist Kurt Lewin in 1944 (Kemmis, 1980). He defined action research as "a form of research which could marry the experimental approach of social science with programs of social action in response to major social problems of the day" (Kemmis, 1980, p.3). Lewin formulated action research as a spiral of planning, implementing and evaluating stages. According to Fraenkel and Wallen (2006) the purpose of action research is to solve a problem and obtain information for informing local practices. The main characteristic of action research in all definitions is its active and practical nature. Another characteristic of action research is its continuous action cycles. When conducting action research, researchers systematically handle problems by following cycles. In the present study, three action cycles were conducted in a spiral process. Each cycle had unique stages. The summary of the cycles is represented in Figure 1.

2.1 Participants of the Study

In this study, a purposeful sampling method was used, as this is most preferred in action research studies (Fraenkel & Wallen, 2003). The participants of the study were 32 students (7 males and 25 females) who were studying at the department of Elementary Science Education at a Public University. The students were third-year and were taking the "classroom management" (CM) course.
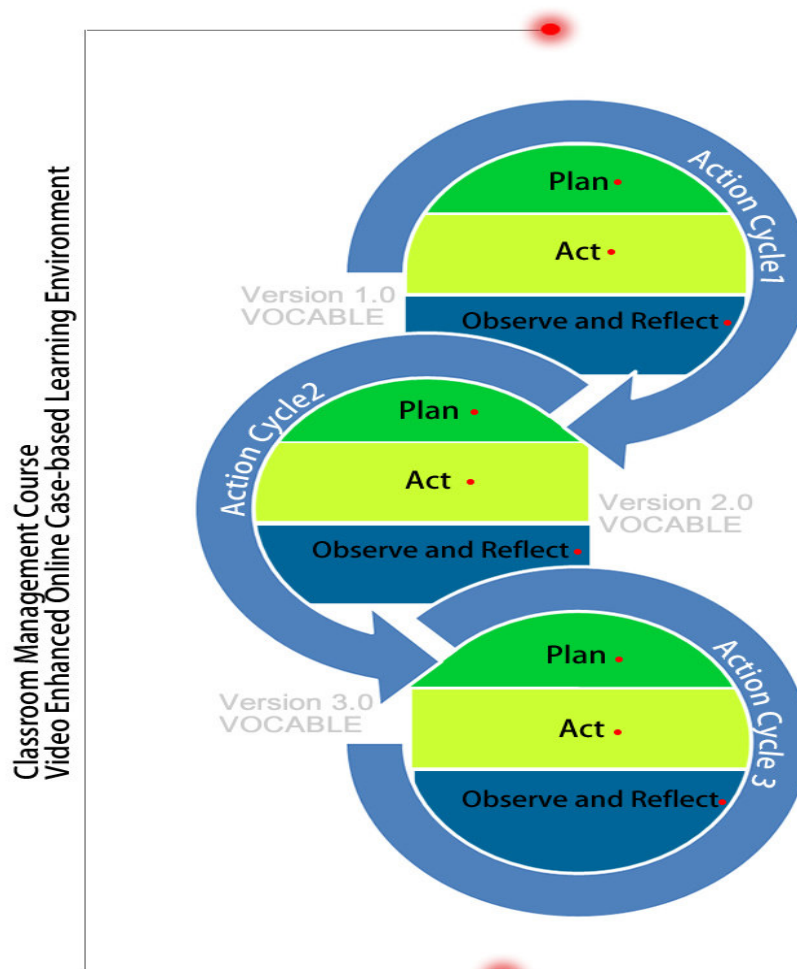

Figure 1. Action Cycles.

2.2 Data Collection Procedure

In this study, action research methodology was used. In this regard, three action cycles were utilized. At the end of each cycle, data were gathered through interviews questionnaires, students' emails and VOCABLE logs.

2.3 Data Analysis Procedure

The study was qualitatively constructed action research. All the data collected through the action cycles were qualitative. The data collection and data analysis were continued parallel with the action cycles. The qualitative data were analyzed using descriptive and content analysis techniques. While descriptive analysis let the researcher get the general picture of the data in the first action cycle, content analysis enabled the researcher to examine all the data gathered through the study in depth. Strauss and Corbin (1998) define qualitative analysis as a "nonmathematical process of interpretation, carried out for the purpose of discovering concepts and relationships in raw data and then organizing these into a theoretical explanatory scheme"(p.11). Although Patton (2001) states that there is no formula for transforming data into findings, in social science, there are many different approaches for qualitative data analysis (Miles & Huberman, 1994). Content analysis is one of the common qualitative data analysis methods which was developed in the 1940s and began to be used in social science in the 1980s (Krippendorff, 2004). In the present study, content analysis was utilized following the four stages which are defined by Yıldırım and Şimşek (2008, p.228) as follows;

(1) Data coding,
(2) Developing themes,
(3) Organizing codes and themes,
(4) Defining and describing the findings and interpretation

2.4 Trustworthiness

One of the main critiques about qualitative methods is that qualitative methods do not have common validity and reliability procedures like quantitative methods. However, qualitative studies use different validity and reliability procedures and measures (Yıldırım & Şimşek, 2008; Shenton, 2004). Many researchers suggest that the terms validity and reliability are inappropriate in qualitative research; instead of these terms, "trustworthiness", "rigorousness", or "quality" of the data can be used (Creswell, 1998; Lincoln & Guba, 1985; Miles & Huberman, 1994). Therefore, qualitative researchers are mostly concerned with the issue of trustworthiness, which is establish in qualitative studies "by the use of techniques that provide truth value through credibility, applicability through transferability, consistency through dependability, and neutrality through confirmability" (Erlandson, Harris, Skipper, & Allen, 1993, p.132). In order to ensure the trustworthiness of the findings as discussed by Lincoln and Guba (1985), the credibility of the study was addressed. Patton (1999, p.1190) defines credibility in three parts:

- *Rigorous techniques and methods for gathering high-quality data that are carefully analyzed, with attention to issues of validity, reliability, and triangulation;*
- *The credibility of the researcher, which is dependent on training, experience, track record, status, and presentation of self.*
- *Philosophical belief in the value of qualitative inquiry, that is, a fundamental appreciation of naturalistic inquiry, qualitative methods, inductive analysis, purposeful sampling, and holistic thinking.*

Three important techniques were used in order to enhance the credibility of the study: prolonged engagement, persistent observation, and triangulation.

2.5 The Design Process and the First Look at VOCABLE

Video Enhanced Online Case-based Learning Environment (VOCABLE) mainly composes of 4 parts: (a) Method, (b) Cases, (c) Scaffolding systems, and (d) Online environment. It allows students to watch video cases and analyze them on the Internet. VOCABLE lets students learn in a step by step procedure and facilitates learning with peer discussions, prompt questions and other scaffolding techniques. The environment was developed in Microsoft.Net platform using ASP and C# programming languages. The webpage was designed using several additional design tools and the researcher applied basic web design principles, including color harmony, suitability of fonts, consistency, balance, and integrity (see Figure 2) Students login with their usernames and passwords and their all analysis is kept on their personal accounts. The website also keeps logs and all the details about the users' actions on VOCABLE.

2.6 Action Cycles

2.6.1 The first cycle

The Plan stage of the first cycle began in the Fall semester and took about six months. During this period, the following was done.

- The current methods in teacher education were investigated.
- The first version of VOCABLE (1.0) was developed.
- The substructures of the case-stories were created.
- About 300 minutes of video was recorded in real classroom environments.

Figure 2. VOCABLE website.

Although the Plan phase was very long, the Act phase took only two weeks. Each week, students analyzed one case. During both weeks, the researcher and students had some technical problems. Moreover, it was seen that some parts of the first version of VOCABLE did not work effectively and some steps and scaffolds needed revisions. Therefore, at the end of the two weeks, the project proceeded to the Observe and Reflect phase. At this stage, which took one week, the researcher gathered data and analyzed them in a qualitative way.

In the first cycle, the data were gathered through focus group interviews, an evaluation questionnaire, the video records of the implementations, the VOCABLE logs and the electronic posts. The interviews and the questionnaire were conducted at the end of the action cycle, while the video records and electronic posts continued during the action cycle. In the first meeting of the CM course, the researcher gave his email information to the whole class and the instructor. He wanted them to be in contact in all cases. During the two-week implementation, 42 emails were sent to the researcher by the students and one email was sent to the researcher by the instructor. CM had three class hours per week and one hour was assigned to the VOCABLE implementation. In this hour, students worked on the case analyses in the computer room. During both weeks, this hour was recorded via video camera.

In addition, at the end of the cycle, two focus group interviews were conducted. For this cycle, the focus group interview method was chosen because the researcher was concerned with general issues about VOCABLE rather than individual experiences. In this regard, a focus group interview would be more helpful than a personal interview, because the issues that may not come to mind in a personal interview can be clarified with the help of other participants' explanations (Yıldırım & Şimşek, 2008). The researcher used criterion sampling depending on the analysis of an expectation questionnaire that classified the students into two groups, which were called "high expected" and "low expected". The researcher chose four volunteers from each group and the focus group interview was conducted with both groups' members. The interviews were recorded via video camera; the first one took 47 minutes and the other 49 minutes. At the same time, the researcher was the

assistant teacher in the course, so he had close interaction with the students and all of them voluntarily wanted to be involved in the interviews. During the interviews, the researcher let participants discuss the questions, and develop new ideas and suggestions.

At the same time, the evaluation questionnaire was filled out by all the students. The questionnaire was available online on VOCABLE. Moreover, during the two-week implementation, 42 emails were sent to the researcher by the students and one email was sent to the researcher by the instructor. The VOCABLE system also recorded all the students' writings and actions. The record of their solutions, discussions and emails were very essential for this cycle. There were 10 pages of discussion and 30 emails, each of which generally took one page.

2.6.2 The second cycle

After the first cycle was completed, Cycle2 was immediately started. During the Plan stage, the researcher developed a plan based on the results of the data analysis of the first cycle and made revisions to VOCABLE based on the results. Then, the Act stage was started and it took six weeks. Each week, students analyzed one case on VOCABLE. At the end of the six weeks, the last phase, Observe and Reflect, was conducted.

In this cycle, the students analyzed six cases and the data were gathered through the individual interviews, the evaluation questionnaire, video records of the implementations, VOCABLE logs and the electronic posts. Similar to the first cycle, the interviews and the questionnaire were conducted at the end of the action cycle, while the video records and electronic posts continued during the cycle. During the six-week implementation, 30 emails were sent to the researcher by the students. Also, during the six weeks, the last hour of the CM course, conducted in the computer room, was recorded via video camera each week. The records took approximately 240 minutes. Moreover, VOCABLE kept track of all the students' writings and actions. Their emails and discussions were very essential for the second cycle. There were about 24 pages of discussion, and 180 emails, each of which took about one page.

Furthermore, in this cycle, individual interviews were conducted with seven students. The individual interview method was chosen in the second cycle because the researcher wanted to gather more data related to students' personal experiences. Criterion sampling method was used and participants were chosen from volunteers. The participants were chosen depending on their performance on case analysis. The researcher graded all students' emails written at the end of the case analysis during the six week. He classified the students into two groups called "high achievement" and "low achievement" depending on their grades. Four students were chosen from each group. One student from the "low achievement" group could not participate because of her health problems. Therefore, the interviews were conducted with seven participants. Each interview was about 40 minutes. In addition, all students filled out the evaluation questionnaire which was available online on VOCABLE.

2.6.3 The third cycle

The result of the second action cycle showed that one more cycle was necessary, so the third action cycle started. In the Plan stage, based on the previous results, the researcher developed a plan and made some minor revisions to VOCABLE. Then, the Act stage started and lasted two weeks. Each week, students analyzed one case on VOCABLE. Lastly, in the Observe and Reflect phase, data was gathered through individual interviews and a questionnaire. The data was analyzed qualitatively, and at first glance, the findings indicated that the problems of preservice teachers in the classroom management course were solved with the last version of VOCABLE. Therefore, action cycles were ended.

In the third action cycle, the students analyzed two more cases and the data were gathered through individual interviews and the evaluation questionnaire. Similar to the previous cycle, the interviews and the questionnaire were conducted in the Observe and Reflect stage of the cycle. Interviews were conducted with 17 preservice teachers. Because it was the last cycle and the researcher wanted to have detailed information about the whole process, interviews were conducted with more than half of the class. Some of the students were chosen based on their previous performance in the first and second action cycles' interviews. On the other hand, some interviews were made with others for first time. Each interview took about 40 minutes. Finally, the evaluation survey was available online for one week. It was completed on VOCABLE by all the preservice teachers.

3. Results

In the first action cycle, the analysis of the responses of the pre-service teachers to open-ended questions, the interview data, and VOCABLE logs revealed twelve major themes. These themes and sub themes are summarized in Table 1. 错误!未找到引用源。

Table 1. The themes and sub themes in the first cycle

Main Themes	Sub Themes
1. Case	Authenticity Video Complexity
2. Steps	Boring Step Change Places Redundant Step The Most Efficient Step Suggestion
3. Article	Support Suggestion Access Problem
4. Stakeholders' perspectives	Support Suggestion
5. Discussion	Support Suggestion Discussion Type
6. Expert Solutions	Support Suggestion
7. Evaluation	Support Suggestion Anxiety
8. Mail	
9. Group Study vs. Individual Study	
10. VOCABLE	Given Instruction System Problem Web Design Ease of Use Previous Usage Time Period Explanation and Question
11. Perception	
12. Feedback	

Furthermore, in the second action cycle, the analysis revealed ten major themes. These themes and sub themes are summarized in Table 2.

Table 2. The themes and sub themes in the second cycle

Main Themes	Sub Themes
1. Case	Authenticity Complexity

2. Discussion	Change
	Usage
	Support
	  Discussion Type
	  Talking out of Discussion Board

3. Multiple source analysis	
4. Peer Evaluation	Change Support and Usage Rubric
5. Stakeholders' perspectives	
6. Experts' Solutions	
7. Mail	
8. Explanations and Questions	
9. Steps	Redundant Step Boring Step Steps' Places The Most Efficient Step
1. Suggestions	

After conducting the third step, it was seen that VOCABLE worked properly in terms of providing practice opportunity to the preservice teacher. Only the discussion board was not used appropriately as it was in the previous cycles Therefore, as planned, the researcher decided to finalize the VOCABLE implementations. The results of the entire process were summarized under the four titles below.

3.1 Video Cases
Results showed that most of the students stated that the cases were authentic and complex. There were six main factors reported by pre-service teachers that contribute to the authenticity of the cases: commonness, providing different perspectives, filling emotion, holding experience, reflecting social facts and being multimedia. In addition, preservice teachers emphasized that the cases' being video-based made them more realistic and enjoyable. They stated that video cases were very helpful because they allowed them to observe real classroom events and misbehaviors.
One of the participants indicated:
"All of them [the cases] have already taken place in a real class environment. And we are also accustomed to such situations in primary education. You know we can observe such events in our life, our friends, and side-class. Therefore, I found the video cases to be very realistic."

3.2 Steps and Scaffolds
The researcher asked the preservice teachers which steps of VOCABLE were most efficient. Almost all steps were mentioned by one or more students, but the following steps were specifically highlighted. These steps were:
- Identify the facts and perspectives of stakeholders
- Discuss your understanding with your friends
- Identify expert solutions
- Generate a list of solutions
- Discuss the advantages and limitations of solutions and specify three of them
- Writing email to teacher

In the first action cycle, while some students attached special importance to the fourth step (expert solutions), some others strongly emphasized the fifth and sixth steps, which were generating solutions and writing advantages and limitations. Results of the evaluation questionnaire supported their statements. 96% of the students agreed that experts' solutions are helpful.

In the second cycle, writing email was highlighted by several students. They indicated that writing emails was helpful in that it allowed them to consider the problem solving and case analysis process together. Moreover, it is also important to emphasize that one student said that writing email allowed her to think about how she should speak to her colleagues and how she should establish a dialogue in her professional life when encountering such problems.

On the other hand, in the first action cycle, students were supposed to conduct multiple source analysis in the eighth step of VOCABLE. Specifically, web addresses of some main research databases and critique keywords were given to students and they were supposed to carry out research with the help of these keywords and read three articles to refer them in the next step while writing email. The purpose of this step was for students to give an academic view about the case. However, results indicated that unlike the other steps, about half of the students (57%) disagreed that this step was useful. The data analysis also showed that approximately half of the students considered the eighth step boring. This was because students had difficulty finding related articles and they felt that reading three articles for one case took too much time and decreased their motivation for completing further steps. In the second action cycle, based on the results, this step was combined with the next one, write your suggestions to the teacher. Students became only responsible for reading and referring one related article or the related chapter of the course book. Also, the researcher gave students a short instruction about how to search for an article related to the case topic. In the third cycle, data analysis showed that most of the students indicated that there was not any boring step. In this regard, one participant pointed out:
"Doing case analysis prepares us for possible problems we could encounter in our professional life. In a sense, it is as if we have done an internship. Although [practicing on VOCABLE] is not exactly the true nature, it has the characteristics of simulation. In this regard, practicing on VOCABLE is a very efficient method for both a classroom management course and for gaining experience by doing practice."

3.3 Peer Evaluation and Feedback
In the second cycle of the study, students were supposed to evaluate each other's problem definitions and solutions written in the first six steps. However, at first glance, the result of the evaluation questionnaire indicated some problems with peer evaluation. Only 44% of students agreed that it is helpful, because students did not see peer feedbacks. In this action cycle, their analyses were evaluated by their peers but VOCABLE did

not show any feedback or score. The results showed that students were not sure whether their analyses were correct or not. Therefore, they wanted to get feedback to see the missing part of their solutions. Thus, this step was revised. In this regard, the following revisions were conducted in the third action cycle:

- peer evaluation was done after the ninth step (the emails' being written)
- students evaluated each other's emails.
- one more step was added to the method which allowed students to see the score and comments given by their peers. Moreover, in this step, they had the chance to revise their email.

Also, students were asked to write their comments explaining the score that they gave. In this way, all students evaluated an email written by another student and they could see the given score and comments. In this cycle, data analysis indicated that almost all students were satisfied with these revisions. Several students said that receiving comments about their writing made them more motivated and productive. One of the participants indicated,

"Gaining feedback with comments, not only with a grade, allowed us to see our mistakes better. Also, seeing friends' comments gave us a chance to consider our ideas from a different perspective. Otherwise we would not have gotten feedback on our writing."

3.4 Online Discussion

Online discussion is becoming an essential part of online learning environments. In the present study, students were supposed to share their ideas and to discuss the issues in the case via the discussion board in the third step. However, in the first action cycle, the analysis of the VOCABLE logs showed that in this step, almost all students wrote their ideas shortly, and immediately continued on to the next step. There was not a discussion atmosphere. On the other hand, results indicated that most of the students (61%) agreed that the discussion step was helpful.

Furthermore, results showed that students gave two reasons for why they did not use the discussion environment appropriately. First, they indicated that they did not want to wait at the third step to discuss the issue; rather, they wanted to continue on to the next step to complete other steps and to save time. Secondly, the students rarely attended the same steps at the same time, so they could not meet at the third step to hold a discussion.   Therefore, at the end of the first action cycle, it was decided that the third step should be removed from the nine-steps-chain; instead, a link was given from every other step sp that students could easily reach the discussion board. Thus, during the six weeks in the second action cycle, students easily reached the discussion environment and they shared their ideas whatever step they were on. In this cycle, results showed that all students were satisfied with this change. They stated that by this change, they could see their friends' ideas and contribute to them, regardless of which step they are on. In this regard, one student indicated:

"I think it was a good last change. If friends typed their views, I began to read them in order to get the ideas. There were some points in the previous steps I wanted to write about but I might forget it. Now it is better that it can be reached from all steps."

However, the analysis of the VOCABLE logs showed that only several students were actively involved in the discussion environment and only thirty posts were sent each week. Data analysis also indicated that while only several students actively used the discussion board, almost all students expressed that this environment was helpful in terms of gaining different perspectives. In order to enable all students to be actively involved, one more revision was made in the third action cycle: the discussion board was integrated into the bottom of each step apart from the assessment step. Thus, students were enabled to communicate with the whole class while the conducting case analysis. However, similar to the previous cycles, in this cycle, results showed that the discussion board was not used. In order to understand why students did not participate in the online discussion, although the necessary revisions were made, further studies are needed.

4. Discussion and Conclusion

The main purpose of the study was to design and develop a suitable and authentic online case-based learning environment for teacher education programs. During one semester, ten video cases were watched by preservice teachers and analyzed on VOCABLE. It was important that the video cases be available on an online learning environment, but it was seen that cases' being used in traditional environments is also very important. Students pointed out that using videos, background music and vocalization are very important. Furthermore, using stakeholders' opinions in further steps as a part of the case allowed students to be involved in stories as if they were real. In this regard, it was seen that giving place to side stories made cases more authentic.

In 2006, Kim and colleagues developed a conception framework from an extensive literature review to guide developing teaching cases. Similar to the result of this study, in their study, five main case attributes were defined: relevant, realistic, engaging, challenging, and instructional. The findings of the current study were consistent with the conception framework drawn from the literature by Kim and colleagues. While cases' being common addresses their being realistic, students' experience addresses their being relevant. Other attributes are

also consistent with Kim and colleagues' conception framework. In this regard, Edelson (1996) highlighted that the main aim of the cases was to convey real life situations in learning environments. Bennett (2009) also indicated that cases enable learners to gain insights into complex real life situations. Therefore, it seems that cases' being video-based was highly important in terms of conveying real life situations.

In a qualitative case study conducted by Bennett (1999), students emphasized that the interviews made with stakeholders are the most useful part of the cases because they provide different individuals' perspectives. Thus, different points of views could be gained. Experts' opinions and experts' thinking is also a very effective scaffold in terms of providing modeling for students. Ge and Er (2005, p.152) stated:

> "Expert response is a very powerful feature that had great impact on students' learning process. The expert modeling gave students an opportunity not only to observe the discrepancies between their own thinking and expert thinking, but also readjust their expectations and set up new goals for developing their problem solving expertise."

Fallows and Chandramohan (2001) indicated that peer evaluation enhance students' assessment capacities. Correspondingly, in their study, Sluijsmans and colleagues (1999) showed that peer evaluation improves the quality of students' further studies.

A recent study showed that "online chats and discussions provided opportunities for the students to share, discuss, and modify their case understanding and to support each other in using that knowledge to solve case and classroom problems" (Mitchem et al., 2008, p.332). Moreover, Larson (1999) reported that through discussion, students can interpret, analyze, and manipulate information, being an active participant. Havard and colleagues (2005) also indicated that online discussion can support critical thinking. In higher education, peer evaluation is also highly preferential because it is a credible and successful technique in terms of providing students important learning benefits (Daniel, Mittag & Bornmann, 2007; Ballantyne, Hughes, & Mylonas, 2002).

At the end of the third action cycle, it was reported that all steps and scaffoldings worked efficiently but the discussion environment did not function effectively despite the revisions made to the discussion board through three action cycles. In this regard, three suggestions can be offered for further studies. First, in addition to online discussion, face-to-face discussion can be conducted in the classroom. Secondly, online discussion can be supported by mobile technologies. However, considering the cost of mobile technologies, it is not appropriate for common usage of VOCABLE yet. Thirdly, the discussion part of VOCABLE can be integrated into social networks like Facebook and Twitter. Thus, discussions can be held on these social networks. Another important issue about VOCABLE is that during the case analysis, preservice teachers were asked to utilize multiple sources, like books, articles and teacher websites, but most of the preservice teachers had difficulty finding related sources, specifically articles. It was observed that they do not know exactly how to find related articles. In future studies, attention should be given to this matter. The results of the first action cycle showed that preservice teachers strongly want to have feedback. Therefore, after this cycle, the researcher made necessary revisions and a peer evaluation step was incorporated as a feedback strategy. Results showed that peer evaluation become helpful and efficient to a certain extent, but some students definitely want to receive feedback from the instructor or an expert. Actually, in available teacher education programs, it may not be possible to give feedback to all students without the help of one or more experts, since an instructor may have more than sixty students. In this condition, peer evaluation is seen as the most logical choice, but if sources are available, other choices should be considered in further studies.

To sum up, it can be said that VOCABLE solved the preservice teachers' practice problem in the classroom management course and it has the potential to solve overall practice problems of teacher education programs. VOCABLE helped students to become familiar with the teaching profession. To do this, VOCABLE used available technologies and existing sources. It is possible to improve the potential of VOCABLE using more manpower and mobile technologies, but in this study, the aim was particularly to solve preservice teachers' practice problems in the most appropriate and feasible way.

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